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POSTER ABSTRACTS

721.ALLOGENEIC TRANSPLANTATION: CONDITIONING REGIMENS, ENGRAFTMENT AND ACUTE TOXICITIES

Prediction of Sinusoidal Obstructive Syndrome after Allogeneic Stem Cell Transplantation Using Liver Stiffness Measurement By Fibroscan

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Background: Sinusoidal Obstructive Syndrome/ Veno-Occlusive Disease (SOS/VOD) is a potentially life-threatening complication post allogeneic transplantation (HSCT) with an incidence of ~ 10% in adults. The sensitivity of SOS symptoms (hyperbilirubinemia ≥2 mg/dl, weight gain>5%, painful hepatomegaly and ascites) is good, but the specificity is relatively low because other conditions such as infections, GvHD, and exacerbation of previous liver disease may cause similar symptoms. Transient elastography (TE) using FibroScan has been implemented as a non-invasive assessment of post-sinusoidal portal hypertension (PHTN) one of the hallmarks of SOS. We aimed to assess TE's applicability in predicting and diagnosis of SOS.

Methods:

This single-center study was conducted between January 2021 and June 2023. Twenty-seven patients (pts) underwent TE, 11 before HSCT (group 1) due to high risk of developing SOS in order to guide subsequent treatment, and 17 after HSCT (group 2) (1 pt was in both groups) due to an elevation of bilirubin ≥2 mg/dl. SOS was defined using the EBMT criteria.

Results:

Eleven pts were included in the 1 st group (M 5, F 6). The median age was 43 (22-65) years. 7 pts had acute myelogenous leukemia (AML) -4/7 secondary AML (sAML), and 4 pts had myelofibrosis (MF). 5/7 AML pts received a median of 4 (2-5) lines of chemotherapy before HSCT; 2/4 sAML pts got azacytidine/ venetoclax and all 4 MF pts received Ruxolitinib before HSCT. Two pts had chemotherapy for antecedent malignancy. Donors were HLA-matched siblings (n=5), matched unrelated (n=2), or haploidentical (n=4). Risk factors for developing VOD included: active disease (n=9), multiple lines of chemotherapy (n=7), elevated serum ferritin (n=5), splenomegaly (n=5 including 1 pt with overt PHTN), severe liver toxicity during previous treatment (n=4), age ≥60 (n=3), second transplantation (n=3), pre-existing liver disease including fatty liver (n=3, including 1 pt with liver cirrhosis), severe obesity (n=2), prior treatment with GO (n=2), baseline liver enzymes elevation (n=2), and alcohol abuse(n=1). The conditioning regimen included total body irradiation (n=1), busulphan (BU) alone (n=5), or double alkylating agents (DAC, n=5), respectively. Four patients had myeloablative conditioning (MAC). Most pts had several risk factors for VOD median 5 (3-8).

This group had a median liver stiffness measurement (LSM) of 10.1 kPa (range, 3.3-28.3). In 6/11 pts with LSM ≥7.2 kPa, the conditioning was modified; Treosulfan was given instead of BU (n=3), non-DAC instead of DAC protocol (n=3), reduced intensity instead of MAC (n=4), methotrexate was omitted (n=2). One pt received Defibrotide prophylaxis. With these modifications only 2 pts developed SOS (1 died).

The second group included 17 pts (M 10, F 7), median age 49 (32-62) years with AML/myelodysplastic syndrome (n=7), acute lymphoblastic leukemia (n=5), MF (n=4), and lymphoma (n=1). Ten had MAC, and 5 had DAC. Five had active disease at HSCT. Three had prior liver disease. All pts had bilirubin elevation ≥2 mg/dl after HSCT but only 10 fulfilled additional criteria for the diagnosis of SOS based on the EBMT criteria. Pts who developed SOS had significantly higher LSM compared to those who did not; 10.7 kPa (IQR, 7.5-25.2) versus 5.9 kPa (IQR, 5.1-7.4), respectively (p=0.007) (Figure 1A). There was a positive correlation between the diagnosis of SOS and LSM levels, with a correlation coefficient of 0.6 (p= 0.04) as determined by the

Spearman correlation test. LSM was able to diagnose SOS with an AUC of 0.89 (p=0.008) (Figure 1B). The cut-off value for SOS diagnosis was 7.5 kPa, with a sensitivity of 80% and specificity of 88%. Pts with severe VOD were treated with defibrotide and none of them died .of VOD.

Conclusions:

Pts with a high risk for VOD may have a high baseline LSM. In these pts, modifying the planned conditioning and GVHD prophylaxis regimens to less hepato-toxic ones may reduce the incidence of subsequent VOD. LSM elevation after HSCT should increase awareness of SOS, while pts with hyperbilirubinemia and low LSM usually suffered from other causes of liver toxicity. High LSM could support the diagnosis of VOD in borderline cases. Therefore, LSM may be an additional diagnostic tool in diagnosing SOS after HSCT, but more studies are needed to confirm these findings.

Disclosures No relevant conflicts of interest to declare.

Figure 1A

Scatter plots displaying the median with interquartile range of LSM values of SOS and non-SOS group

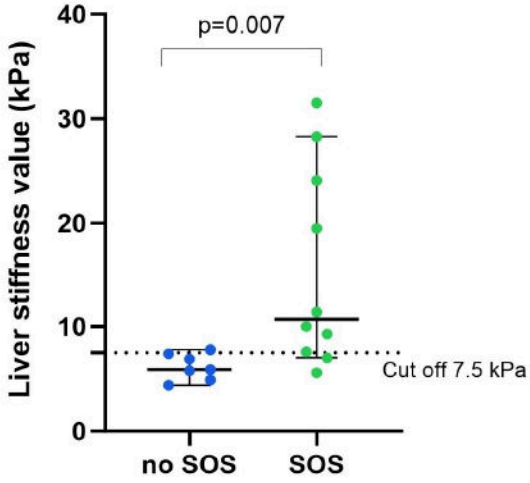

Figure 1B

ROC curve analysis of LSM and prediction of SOS diagnosis after HSCT

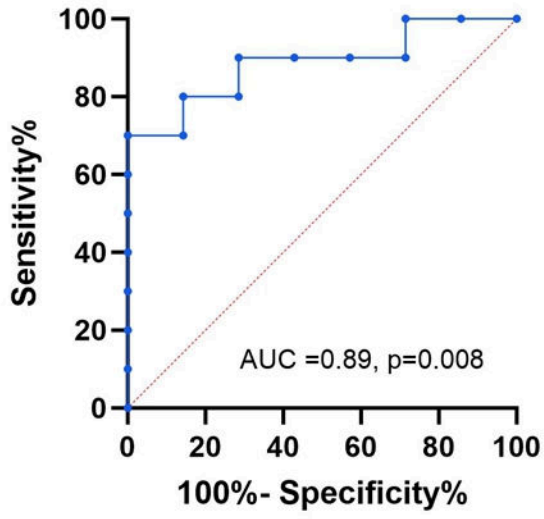

Figure 1

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